

CARDING ENGINE.

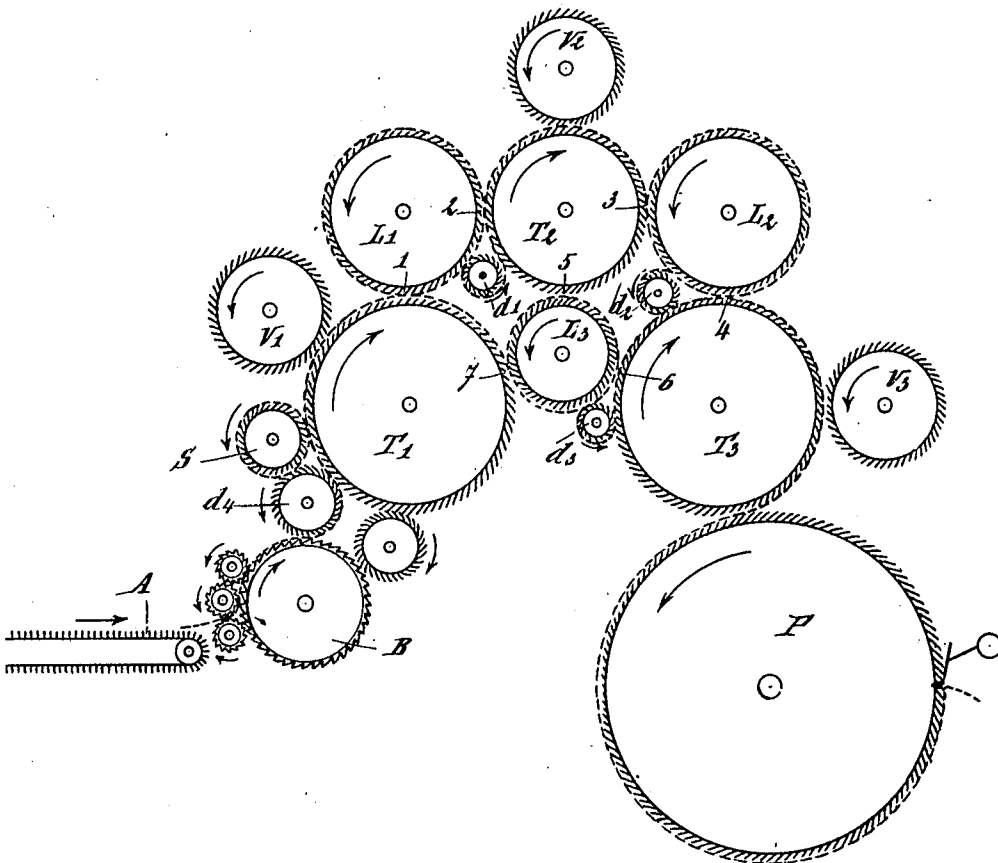
APPLICATION FILED MAR. 25, 1916. RENEWED JULY 17, 1919.

1,314,586.

Patented Sept. 2, 1919.

3 SHEETS—SHEET 1.

Fig. 1.



Inventor:

Pseudonim: Grosjean

By his Attorney

Rosenbaum, Lockridge & Covert

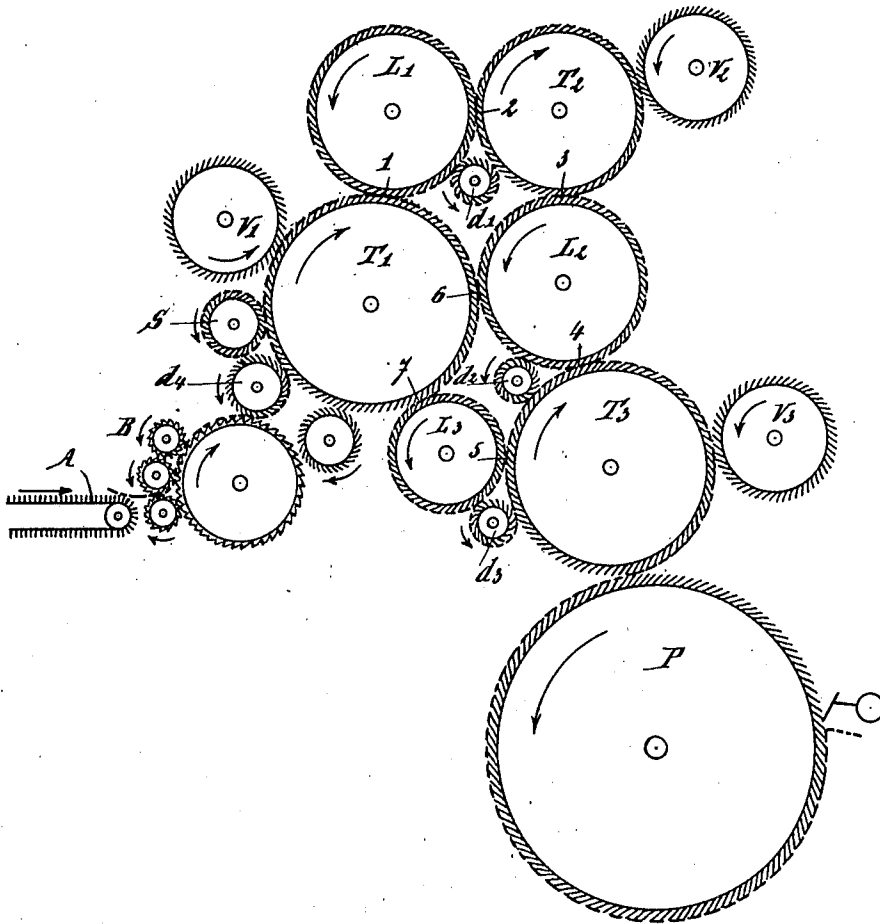
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Fig. 2.



Inventor:

Dionisio Grosjean

By his Attorney

Rosbann Stockbridge Bond

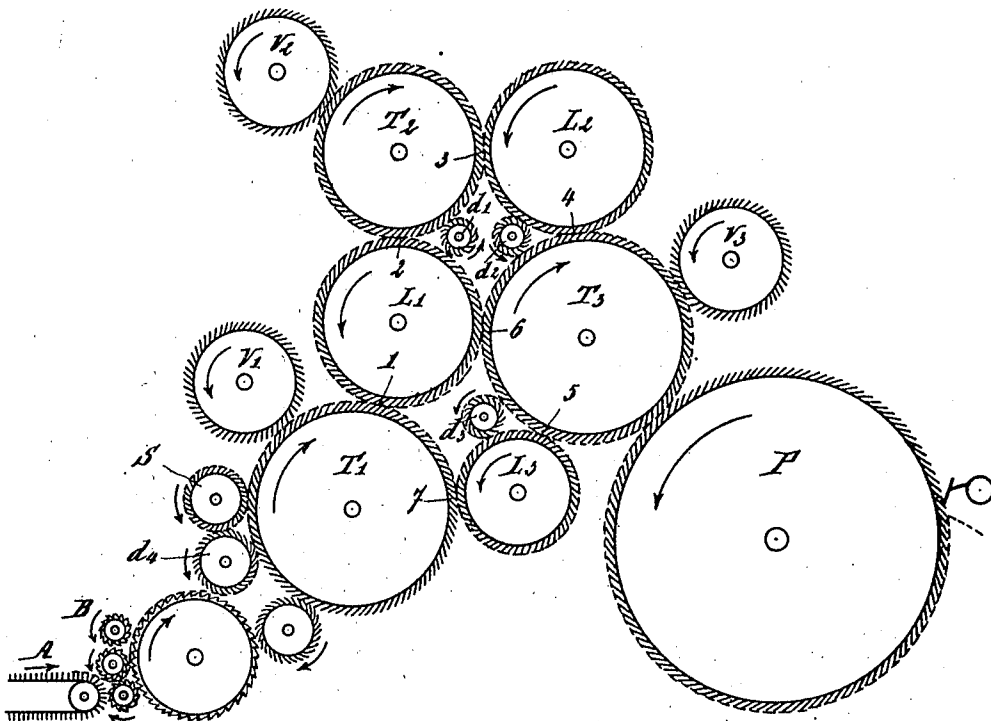
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3 SHEETS—SHEET 3.

Fig. 3.



Inventor:

Dionisio Grosjean

By his Attorney

Rosenbaum, Stokine & Borst

UNITED STATES PATENT OFFICE.

DIEUDONNÉ GROSJEAN, OF VERVIERS, BELGIUM.

CARDING-ENGINE.

1,314,586.

Specification of Letters Patent.

Patented Sept. 2, 1919.

Application filed March 25, 1916, Serial No. 86,557. Renewed July 17, 1919. Serial No. 311,679.

To all whom it may concern:

Be it known that I, DIEUDONNÉ GROSJEAN, a subject of the King of Belgium, residing at Verviers, in the Kingdom of Belgium, have invented certain new and useful Improvements in Carding-Engines, of which the following is a specification.

My invention relates to improvements in carding engines and more particularly to a relative arrangement of series of cylinders and series of worker rollers, adapted to be used as a substitute for the single main cylinder generally used in combination with a number of worker-rollers in the ordinary and well-known carding engine.

One object of my invention is to reduce the total quantity of cards or of carding surface which was hitherto required, without interfering with the action of the engine, and, on the contrary, with the result of altogether improving the said action.

A further object of my invention is to reduce the weight of the engine and to facilitate the control and also the mounting and dismounting of the several parts on account of the suppression of the ordinary main cylinder.

With these objects in view, my invention essentially consists in special arrangements and combinations of parts as will be hereinafter described and pointed out in the appended claims.

Referring to the annexed drawings:

Figure 1 is a diagrammatical view of a first arrangement of a carding engine constructed according to my invention.

Figs. 2 and 3 are similar views of modifications.

As it is well-known, carding engines as hitherto constructed generally comprise a single main cylinder of great diameter co-operating with a series or a plurality of worker-rollers of small diameters, a plurality of clearer rollers, a fly and a doffing cylinder.

According to my invention, I substitute for the main cylinder a plurality of cylinders or rollers having a diameter corresponding substantially to the diameter of the worker-rollers but rotating at a higher speed than the worker-rollers, and I arrange said plurality of rollers in relation to the worker-rollers in such a manner that practically such a cylinder or high-speed roller always coöperates with at least one worker-roller or

slow-speed roller, or preferably with two or more worker-rollers of substantially the same diameter. Further in order to improve the action of said high speed rollers upon the fibers, I arrange said high-speed rollers and the worker-rollers by pairs in alternate succession, so that the last worker-roller coöperates simultaneously with the last high speed roller of the series and with the first high speed roller and I provide each high-speed roller with a fly, arranging the clearer-rollers relatively to the high-speed rollers and to the worker rollers in such a manner that the action of a fly on a high-speed roller always takes place after a carding action between a high speed roller and a worker-roller, following the action of a clearer roller transferring the fibrous material from the worker-roller to the coöperating high-speed roller.

Supplementary worker-rollers and clearer-rollers may, of course, be used at special places, for instance just after the feeding device of the engine, so as to prevent the projection of the fibrous material out of the cards or teasels before having been sufficiently acted upon.

In the example of Fig. 1, T_1 T_2 T_3 are three high speed rollers, acting as an ordinary cylinder, provided with teasels or cards, the teeth of which are turned in the direction shown, and which rotate in the direction of the arrows. L_1 L_2 L_3 are three worker-rollers, rotating at a slow speed, in the direction of the arrows, L_1 L_2 having the same diameter as the high-speed roller T_2 and L_3 being somewhat smaller in diameter so as to be adapted for location between T_1 and T_3 which have substantially the same diameter.

With each of the high speed rollers T_1 T_2 T_3 coöperates a fly V_1 V_2 V_3 — d_1 d_2 d_3 are clearer-rollers; P is the doffing cylinder and A—B the feeder device of the engine.

As it will be observed the differences of diameters of the high-speed rollers T_1 T_2 T_3 and of the worker-rollers L_1 L_2 L_3 are very small in comparison with the difference of diameters between the main cylinder and the worker-rollers of an ordinary carding engine; said little differences are only for the purpose of reducing the space required by the engine and it must be understood that, practically, the diameters of the three sets of rollers T_1 L_1 T_2 L_2 and T_3 L_3 could.

be the same, one feature of the invention consisting in fact in the use of sets of high-speed rollers and worker-rollers having approximately the same diameter, instead of
 5 a main cylinder of great diameter and worker-rollers of comparatively very small diameter.

In the example shown, the material which is to be treated is fed by the feeding device
 10 A—B to the high speed roller T_1 ; it is then subjected to the action of a first little or supplementary worker-roller S coöperating with a clearer roller d_4 so as to be sufficiently carded before reaching the first fly V_1 ; this
 15 little worker-roller S acts as a supplementary worker-roller, independently of the worker-rollers properly so called L_1 L_2 L_3 in order to retain the material in the teeth of the cards of the high-speed roller T_1 and
 20 to prepare the material to the further action of the worker-rollers L_1 L_2 L_3 and high speed rollers T_1 T_2 T_3 . After having been subjected to the action of the fly V_1 the material is successively acted upon between the
 25 high speed rollers T_1 T_2 T_3 and the worker-rollers L_1 and L_2 at the points 1, 2, 3, 4, a clearer roller d_1 and d_2 coöperating with each worker-roller L_1 and L_2 before those
 30 of these points 2 and 4 which are followed by a fly V_2 and V_3 . Further the worker-roller L_3 coöperating with the high-speed rollers T_1 T_2 and T_3 at the points 5—6—7 and with a clearer-roller d_3 completes the
 35 action, collecting finally the material remaining in the cards of the high-speed rollers T_1 T_2 and transferring it to the high speed roller T_3 from which the material is collected by the doffing cylinder P after the
 40 action of the fly V_3 .

Owing to this arrangement, as it will be obvious from the drawing, each high-speed roller T_1 T_2 T_3 presents three carding points (in the example described), T_1 with S— L_1 and L_3 and T_2 with L_1 L_2 and L_3 T_3 with
 45 L_3 L_2 and the doffing cylinder. This is an important feature in view of the regularity of the fleece which is to be produced.

The modifications shown in Figs. 2 and 3 only differ from the arrangement just described in that the sets of rollers T_1 L_1 ; T_2 L_2 ; and T_3 L_3 are arranged in vertical succession instead of in horizontal succession with a view of reducing the length of the engine. Otherwise the action is quite
 55 similar to that already described, the relative arrangement of the clearer-rollers d_1 d_2 d_3 and of the flies V_1 V_2 V_3 being also the same. In the example of Fig. 2, the feeding of the engine takes place in the central
 60 part thereof while in Fig. 3 it is effected at the lower part of the engine, the position of the doffing cylinder being changed accordingly.

It will be observed that whatever may be
 65 the arrangement of the high-speed rollers

and worker-rollers, either in horizontal or in vertical succession, said rollers are always arranged by pairs or sets of two in alternate succession, a worker roller being
 70 consequently located between two high-speed rollers, and the last worker-roller of the series coöperating simultaneously with the last high-speed roller and with the first high-speed roller of the series; this is important in order to secure the regularity of
 75 formation of the fleece and to facilitate the regular progress of the material through the engine, from the feeding device to the doffing cylinder.

Having thus described my invention, what I claim is:

1. The process of carding fibrous material which comprises initially dividing a lap of fibrous material as fed to a carding engine, separately carding each of the divided portions and reuniting the divided portions.

2. The process of carding fibrous material which comprises initially dividing a lap of fibrous material as fed to a carding engine, separately carding each of the divided portions, reuniting the divided portions on a swift, and finally doffing the reunited portions.

3. In a carding engine, the combination of a plurality of high speed rollers and worker rollers arranged in alternate succession, a worker roller being located between each pair of high speed rollers, and the last worker roller of the succession coöperating with the first high speed roller of the succession.

4. In a carding engine, the combination of a plurality of high speed rollers, a worker roll between each pair of high speed rollers, the coöperating surfaces of the high speed rollers and the worker roll moving in the same direction.

5. In a carding engine, in combination, a feeding device, a plurality of high-speed rollers, the said rollers being provided with teasels, a plurality of worker-rollers, also provided with teasels, the said high-speed rollers and worker-rollers having substantially the same diameter and being arranged by pairs in alternate succession, the last worker-roller coöperating simultaneously with the last high-speed roller and with the first high-speed roller, a plurality of flies, a plurality of clearer-rollers and a doffing cylinder.

6. In a carding engine, in combination, a feeding device, a plurality of high-speed rollers, the said rollers being provided with teasels, a plurality of worker-rollers, also provided with teasels, the said high-speed rollers and worker-rollers having substantially the same diameter and being arranged by pairs in alternate succession, the last worker-roller coöperating simultaneously with the last high speed roller and with the

first high-speed roller, a fly for each high-speed roller, a plurality of clearer-rollers and a doffing cylinder.

7. In a carding engine, in combination, a feeding device, a plurality of high-speed rollers, the said rollers being provided with teasels, a plurality of worker-rollers, also provided with teasels, the said high-speed rollers and worker-rollers having substantially the same diameter and being arranged by pairs in alternate succession, the last worker-roller coöperating simultaneously with the last high-speed roller and with the first high-speed roller, a fly for each high-speed roller, a clearer-roller coöperating with each high speed roller and its coöperating worker-roller before the point of action of both rollers which is followed by a fly, and a doffing cylinder.

8. In a carding engine, in combination, a feeding device, a plurality of high-speed

rollers, the said rollers being provided with teasels, a plurality of worker-rollers, also provided with teasels, the said high-speed rollers and worker-rollers having substantially the same diameter and being arranged by pairs in alternate succession, the last worker-roller coöperating simultaneously with the last high-speed roller and with the first high-speed roller, a fly for each high-speed roller, a plurality of clearer-rollers, a supplementary worker-roller coöperating with the first high-speed roller before the fly of said high speed roller, and a doffing cylinder.

In testimony whereof I have affixed my signature in presence of two witnesses.

DIEUDONNÉ GROSJEAN.

Witnesses:

GEORGE BEDE,
CHARLES A. JOHNSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."